

**Notice of Allowability**

Application No.

10/614,840

Examiner

Theresa T. Doan

Applicant(s)

HOWARD ET AL.

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/07/04.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ The drawings filed on 10/17/03 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 12/08/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

1. Applicant's election of Group II claims 1-23 in the reply filed on 07/12/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### **EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

3. This application is in condition for allowance except for the presence of claims 24-33 non-elected without traverse. Accordingly, claims 24-33 have been cancelled.

### ***Reasons for Allowance***

4. Claims 1-23 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record fails to disclose the combination of an electronic device recited in the base claims 1, 16 and 23. Specifically, the combination of the structure comprising: a substrate, having a top surface and a bottom surface; a body region, having a second top surface, a second bottom surface and a second side surface, a portion of the side surface contacting a gate region communicable to a gate terminal; a

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channel region, having a third top surface, a third bottom surface, and a third side surface, the third side surface contacting the body region, the third bottom surface being substantially coplanar to the second bottom surfaces and contacting the buried layer, the third top surface being substantially coplanar to the second top surface and electrically communicable to a source region (claim 1); or the combination of the structure comprising: a channel region with a second polarity doping, having a top surface, a bottom surface, and a side surface, the top surface being substantially coplanar to the top surface of the first region, the bottom surface being substantially coplanar to the bottom surfaces of the first region and electrically communicable to the buried layer, the side surface contacting the first region (claim 16); or the combination of the structure comprising: a buried layer of mono-crystalline silicon near the top surface, doped with a n-type doping to a sheet resistance of about 25 ohms per square, the buried layer being electrically communicable to a drain terminal near the top surface of the substrate; a silicon mono-crystalline first region with p-type doping to a concentration of about  $1 \times 10^{15}$  doping ions per cubic centimeter, having a top surface, a bottom surface and a side surface, the distance between the top and the bottom surfaces being about 0.7 micrometers, the lower portion of the side surface being in contact with a silicon dioxide region and the upper portion of the side surface being in contact with a p-type, poly-crystalline silicon gate region; and an n-type silicon mono-crystalline-channel region with n-type doping to a concentration higher than about  $1 \times 10^{15}$  doping ions per cubic centimeter, having a top surface, a bottom surface, and a side surface, the top surface being substantially coplanar to the top surface of the p-

type first region, the bottom surface being substantially coplanar to the bottom surfaces of the p-type silicon mono-crystalline region and electrically communicable to the buried layer, the side surface contacting the p-type first region (claim 23).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa T Doan whose telephone number is (571) 272-1704. The examiner can normally be reached on Monday to Thursday from 8:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WAEL FAHMY can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TD  
February 15, 2005.

  
PHAT X. CAO  
PRIMARY EXAMINER